

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 19603/2593	FOR FURTHER ACTION		see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US 99/ 25365	International filing date (day/month/year) 28/10/1999	(Earliest) Priority Date (day/month/year) 28/10/1998	
Applicant CORNELL RESEARCH FOUNDATION, INC. et al.			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 99/ 25365

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 1-3, 5-15, 17-22, 24-33, 37-42, 46, 49-51, 53-54 all in part

Present claims 1-3, 5-15, 17-22, 24-33, 37-42, 46, 49-51, 53-54 relate to compounds defined by reference to desirable characteristics or properties, namely that they are trk receptor ligands or compounds that inhibit expression or activity of a trk receptor ligand. The claims cover all compounds having these characteristics or properties, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such compounds. In the present case, the claims so lack support and the application so lacks disclosure that a meaningful search over the whole of the claimed scope is impossible.

Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compounds by reference to a result to be achieved. Again this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to:

- the compounds described in claims 4, 16, 23, 34, 43, 52, i.e. BDNF, NT-3, NT-4, mutagenised derivatives and small molecule mimics thereof;
- additionally for claims 31-33, 37-42, 46, the compounds described in claims 35-36 and page 18, lines 14-23 of the description, i.e. trk receptor bodies, ribozymes and antisenses RNA directed to the trk receptor ligands BDNF, NT-3 or NT-4.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International Application No

US 99/25365

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K38/18 A61K38/17 A61K48/00 A61K31/7088 A61P9/00
 A61P17/02 A61P35/00 A61P27/02 G01N33/50 G01N33/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K G01N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	OIKAWA T ET AL: "Inhibition of angiogenesis by staurosporine, a potent protein kinase inhibitor" JOURNAL OF ANTIBIOTICS, vol. 45, no. 7, July 1992 (1992-07), pages 1155-1160, XP002138728 the whole document	31-33
A	HARDIE G & HANKS S (EDS.): "The Protein Kinase Factsbook II: Protein-Tyrosine Kinases" 1995, ACADEMIC PRESS, LONDON XP002138729 page 208 -page 217 --- -/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

25 May 2000

Date of mailing of the international search report

14/06/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Teyssier, B

INTERNATIONAL SEARCH REPORT

International Application No

US 99/25365

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	HEMPSTEAD B L: "Strategis for modulating trk receptor activity" EXPERIMENTAL NEUROLOGY, vol. 124, no. 1, November 1993 (1993-11), pages 31-35, XP000907024 ---	
X	US 5 654 427 A (MURAKATA CHIKARA ET AL) 5 August 1997 (1997-08-05) column 1, line 42 -column 2, line 26 ---	37,40,46
X	WO 95 21193 A (UNIV MCGILL ;SARAGОВI URI H (CA); LESAUTEUR LYNNE (CA); CUELLO A C) 10 August 1995 (1995-08-10) claims 10,12,14,15 ---	37, 40-43,46
X	WO 97 21732 A (UNIV MCGILL ;SARAGОВI H URI (CA); LESAUTEUR LYNNE (CA)) 19 June 1997 (1997-06-19) claims 5,6,14,15,18 ---	37,40,46
A	claims 1-4,7-14,22 ---	1-3, 20-22,47
E	WO 00 10552 A (GLOBAL VASCULAR CONCEPTS INC) 2 March 2000 (2000-03-02) claims ---	37,38,46
X	DONOVAN MJ ET AL: "Neurotrophin and neurotrophin receptors in vascular smooth muscle cells: Regulation of expression in response to injury." AMERICAN JOURNAL OF PATHOLOGY, vol. 147, no. 2, August 1995 (1995-08), pages 309-324, XP002138106 cited in the application page 322, "Expression of neurotrophins and their receptors in human atherosclerotic plaques" ---	31-46
A	page 310, column 1, line 14 - line 16 ---	1-30
A	page 321, column 1, line 16 - line 31 pages 310-313, "Material and Methods" ---	49-54
A	WO 96 33731 A (REGENERON PHARMA) 31 October 1996 (1996-10-31) claims ---	1-30
A	US 5 817 471 A (PARADA LUIS F ET AL) 6 October 1998 (1998-10-06) claims ---	47,48
A	WO 98 32859 A (CORNELL RES FOUNDATION INC ;CRYSTAL RONALD G (US); ROSENGART TODD) 30 July 1998 (1998-07-30) claims ---	6,18,25, 29,35,44

	-/--	

INTERNATIONAL SEARCH REPORT

International Application No

US 99/25365

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	HEMSPTEAD B ET AL: "Brain derived neurotropic factor induces angiogenesis: Role in intramyocardial vessel development." BLOOD, vol. 92, no. 10 SUPPL. 1 PART 1-2, 15 November 1998 (1998-11-15), page 175A XP000907208 (40th Annual Meeting of the American Society of Hematology, Miami, 4-8/12/1998) abstract -----	1-54
P,X	MCGREGOR LM ET AL: "Roles of trk family neurotrophin receptors in medullary thyroid carcinoma development and progression." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol. 96, no. 8, 13 April 1999 (1999-04-13), pages 4540-4545, XP002138108 abstract; pages 4544-4545, "Discussion" -----	31-46

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

US 99/25365

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5654427	A	05-08-1997	US 5516771 A	14-05-1996
			AT 165097 T	15-05-1998
			AU 679752 B	10-07-1997
			AU 6960794 A	20-12-1994
			CA 2163904 A	08-12-1994
			DE 69409641 D	20-05-1998
			DE 69409641 T	26-11-1998
			EP 0699204 A	06-03-1996
			EP 0839814 A	06-05-1998
			ES 2118414 T	16-09-1998
			FI 955709 A	03-01-1996
			NO 954816 A	26-01-1996
			WO 9427982 A	08-12-1994
WO 9521193	A	10-08-1995	AU 1572695 A	21-08-1995
			EP 0743955 A	27-11-1996
			US 6017878 A	25-01-2000
WO 9721732	A	19-06-1997	AU 7689496 A	03-07-1997
			EP 0869976 A	14-10-1998
WO 0010552	A	02-03-2000	NONE	
WO 9633731	A	31-10-1996	AU 5576796 A	18-11-1996
US 5817471	A	06-10-1998	US 5231001 A	27-07-1993
			US 5811396 A	22-09-1998
			AU 652624 B	01-09-1994
			AU 1555192 A	21-10-1992
			CA 2106080 A,C	15-09-1992
			EP 0575498 A	29-12-1993
			JP 2561604 B	11-12-1996
			JP 6500792 T	27-01-1994
			WO 9216559 A	01-10-1992
WO 9832859	A	30-07-1998	US 5846225 A	08-12-1998
			AU 6253098 A	18-08-1998
			NO 993669 A	27-09-1999
			PL 334902 A	27-03-2000